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Indonesia

Agricultural Situation

Bio-Fuels

2006

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Report Highlights:
The global rise in fuel prices and recent reduction in fuel subsidies has generated much interest in biofuels in Indonesia. However, no incentives or use mandates yet exist to stimulate biofuel development, and production is still insignificant. Marketing of a 5 percent biodiesel blend was recently launched on a very limited scale. Palm oil may potentially be a promising biofuel raw material in Indonesia, but the unfavorable overall business climate still hinders private sector investment in this sector.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
Jakarta [ID1]
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Executive Summary

Indonesia has joined the global bandwagon in pursuing biofuels as a potential alternative source of energy to replace fossil fuels. While the Government of Indonesia (GOI) has placed emphasis on developing biofuels, no concrete incentives or clear policy yet exists to facilitate investment and development. The most recent GOI policy action taken was approval that fuel could contain up to 10 percent biofuel. However, no content mandates exist. GOI's Agency for Assessment and Application of Technology (BPPT) has conducted research in biofuels and also has a production plant. On May 20, 2006, the State-run petroleum company, Pertamina, opened a few outlets in Jakarta offering a 5 percent biodiesel blend, with the raw material being supplied by BPPT.

Some relatively small-scale plants and pilot projects are currently running, and some firms plan to construct large-scale industrial production plants. Most of these plans focus on using either palm oil or castor oil to produce biodiesel, although one firm is also considering corn for ethanol. However, these plans are still in the preliminary stage, and overall biofuel production capacity is still very small. Many large multi-national agro-industrial companies, who possess biofuel production facilities in other countries, say that Indonesia's business climate is still not conducive to investing in biofuel production plants.

As the world's second leading palm oil producer, and with a surplus approaching 10 million tons, palm oil has the greatest potential as an input for biofuel production in Indonesia. However, for this to happen, the palm oil would have to be bid away from export markets, where demand is very strong. The Ministry of Agriculture is encouraging expansion in both palm and castor oil production for biofuel production. Molasses, a by-product of local sugar refineries, is the main raw material currently being used for ethanol fermentation, yet little of that being produced is fuel grade. Some are placing great hopes on using castor oil, which is being developed to replace diesel fuel.

Domestic Policy Environment

GOI has yet to develop any clear policy or package of incentives for developing biofuels. Two recent Presidential Decrees established general guidelines for production and use of biofuels, encourage development, yet implementing details will require additional GOI regulations. Several Ministers have been quoted in press articles saying that specific incentives will be provided for both raw material production and plant construction, but no concrete measures have yet been taken. At a GOI National Seminar on Biofuel in May 2006, presentations and discussion focused more on coordination among departments, standardization, and the current regulations for the industry rather on any new policy initiatives or clear incentive measures.

Indonesia is heavily dependent on fossil fuel, and is the only OPEC member that is a net oil importer. Roughly 30 percent of oil needs are imported. Fossil fuels power virtually all modes of transportation and a large percentage of power plants as well. If continued to be used at current rate, domestic crude oil reserves are forecast to be depleted within 10 years. Meanwhile coal and natural gas are forecast to last another 60-80 years, assuming no alternative source is developed.

GOI is greatly concerned about its dependence on fossil fuels, which has only been heightened by the global increase in crude oil prices. The concern was further intensified when last October GOI was forced to slash consumer fuel subsidies. The impact of the rise in fuel prices is still effecting consumer purchasing behavior and the macroeconomic environment.

As a result of this environment, GOI has focused on encouraging biofuel development. The two Presidential Decrees noted above provide approval for incorporating up to 10 percent alcohol to be included in gasoline and up to 10 percent biodiesel in diesel. Previously, any mixing of this sort was a criminal act. In May 2006, State-run petroleum company Pertamina began marketing a 5 percent biodiesel product at a few outlets in Jakarta. Reportedly, the State run firm is also preparing a 10 and 15 percent blend, but lack of raw material is delaying release of these products. The biodiesel blend is currently being sold at the same subsidized price as regular diesel, but it is unclear whether this is a long term pricing policy. Currently, the production of Pertamina Biodiesel will be centralized in Balongan Refinery in Indramayu, West Java.

Production

1. Ethanol Production: No ethanol is being produced from corn sugarcane or sugar beets. There are about ten ethanol factories with the total capacity of around 200 million liter per year. However, little of this is fuel grade ethanol; most is being produced for other industrial purposes. There are two bio-ethanol factories in Indonesia in Indonesia. Both are located in Java, one is in Karanganyar, about 15 km from Solo, Central Java, and another one is in Lawang, sub-district of Malang, East Java. Both plants use molasses from local sugar refineries as the raw material, and neither produce ethanol for fuel. The factory in Karanganyar produces the following:
o Ethanol: 42,000 kiloliter/year, purity 96.5% v/v
o Acetic acid: 33,000 tons/year, purity 99.8% w/w, food grade
o Ethyl acetate: 7,500 tons/year, purity 99.9% w/w, industrial grade

The factory in Malang has a capacity of 40,000 Kiloliter/year (330 working days/year), while current operating capacity is about 35,000 Kiloliter/year. Products produced include:

o Purity 95%: Technical grade quality
o Purity 96.5%: Prime quality
o Purity 97%: Super quality
o Purity 99.9%: Absolute ethanol

As stated above, these products are not for fuel production, but for use in the following sectors: Beverages, Pharmacy, cigarettes, household, Acetic Acid
And Ethyl Acetate.

2. Biodiesel Production: Currently there are no big/commercial scale biodiesel plants in Indonesia. Existing facilities are either pilot plant projects or research institutions' production. Only two significant operators exist: GOI's Agency for the Assessment and Application of Technology (BPPT) at 1.5 tons a day; and PTPN 4 (a state-owned palm oil plantation) at 8,000 liters per day. Both supply Pertamina.

3. Planned Production: The Coordinating Investment Board (BKPM) has approved seven permits to construct new biodiesel factories in Indonesia. Companies obtaining permits include two Indonesian conglomerates with large palm oil plantation holdings, and a joint venture between a Malaysian and U.S. company. BPPT also intends to expand its current production capacity. Another privately-owned local company that engages in wide range diversified of activities (petroleum trading, exploration, telecommunications, agro-industry, etc), is planning to acquire 60,000 hectares in West Kalimantan for corn production to start corn-based bio-ethanol.

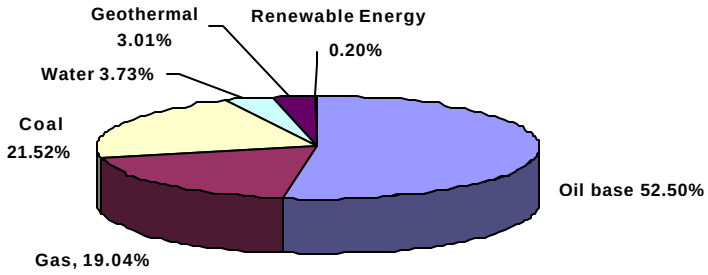
However, most of the plans focus on using crude palm oil (CPO) as a raw material. With domestic CPO output forecast at above 15 million tons in 2006, and expectations that output

will continue to grow, CPO is the most logical raw material for biodiesel in Indonesia. Nonetheless, for CPO to be incorporated into domestic production, local buyers will have to bid against the thriving export market. The Ministry of Agriculture (MOA) is also encouraging castor oil production for biofuel, but castor oil supplies are still inadequate to be considered as a viable raw material for production. Similarly, for ethanol, sugar cane supplies are insufficient and corn production is inconsistent, and logistical constraints would limit potential for either of these two raw materials to be used as a basis for bioethanol fuel production in Indonesia. Cassava supplies, however, may be sufficient to be used as raw material for large-scale ethanol production.

Because of the constraints mentioned above, compounded by the generally unfavorable investment climate in Indonesia, many agro-industrial multinationals that are heavily involved in biofuels in other countries are hesitant to make any commitment to biofuel production in Indonesia at this time.

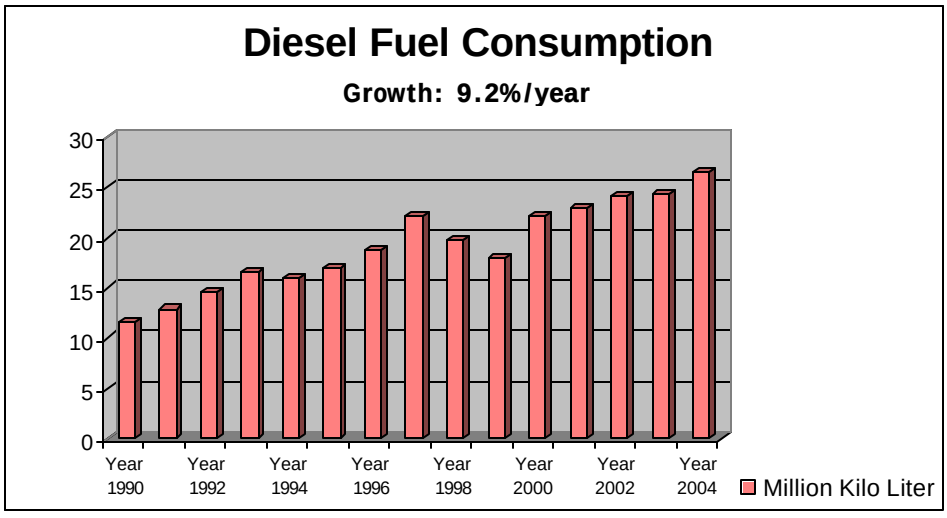
Consumption of Energy In Indonesia

According to Ministry of Energy and Mineral Resources, primary energy consumption in Indonesia in 2004 is:



Source: Ministry of Energy and Mineral Resources Republic of Indonesia

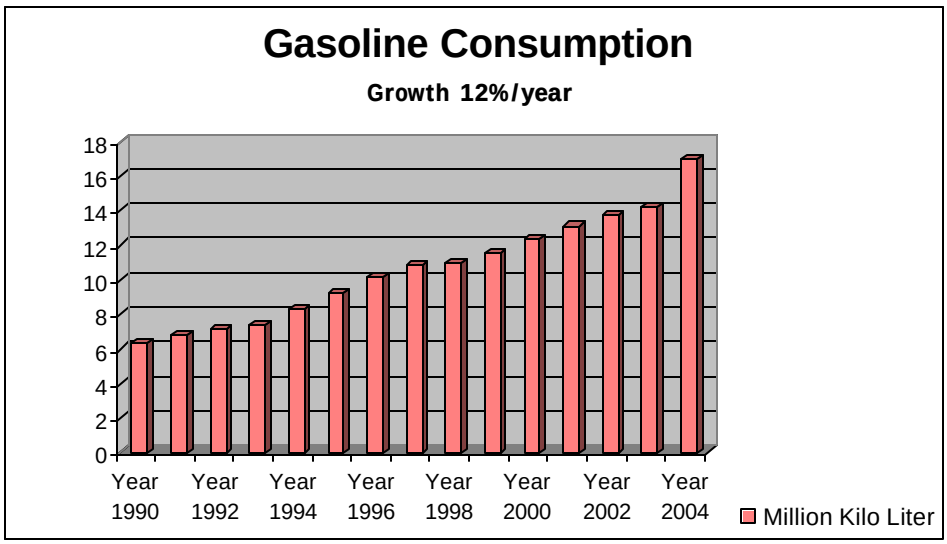
Diesel fuel consumption in Indonesia:



Source: Directorate General Oil & Gas, Republic of Indonesia

Domestic demand of diesel fuel is about 27 million kiloliters per year, of which 30 percent is imported. GOI has targeted that by 2010 5-10 percent of the total demand will be substituted by biodiesel. Pertamina officially launched biodiesel on 20 May 2006. Biodiesel BE5 is available in 4 (four) petrol stations in Jakarta. The price is the same as regular diesel fuel: Rp. 4,300/liter. Reportedly, Pertamina also expects to have 10 petrol stations offering biodiesel by the end of the year, with sales at 100,000 liters/day. In 2007, Pertamina hopes to expand biodiesel sales to Surabaya, Medan and Bali.

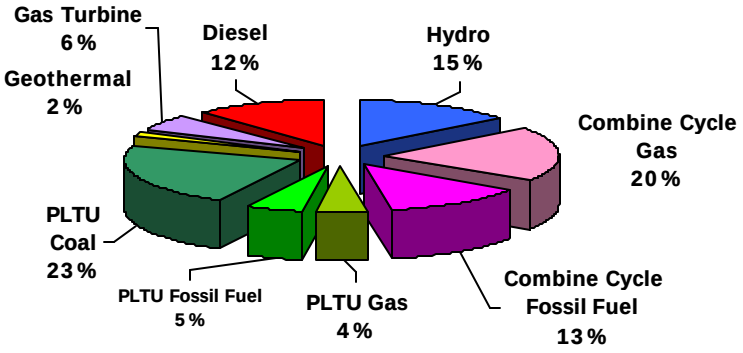
Gasoline consumption in Indonesia:



Source: Directorate General Oil & Gas, Republic of Indonesia

Three kinds of gasoline are marketed: 1) Premium, 2) Pertamax and Pertamax Plus. They differ in octane number, with Premium the lowest and Pertamax Plus the highest. Subsidies are being eliminated for Pertamax and Pertamax Plus. Premium, still subsidized, constitutes the biggest sales, reaching 57 percent of the Pertamina fuel sales.

For power plant Consumpton:
Installed power plant (24,231 MW) 2005, in Indonesia:



Note: PLTU = Steam powered power plant

***Source*:** Ministry of Energy & Mineral Resources, PLN: state-owned electricity company, Republic of Indonesia, 2006

Indonesia is expected to need an additional of 10,000 MW to supply the nation. Electricity shortages have been occurring outside Java, where 10 (ten) regions are critically deficit in electricity availability.

Trade (Ethanol, Biodiesel and Sweetener)

Indonesia ethanol import:

Indonesia Import Statistics Commodity: 2207, Ethyl Alcohol, Undenatured, Of An Alcoholic Strength By Volume Of 80% Vol. Or Higher; Ethyl Alcohol And Other Spirits, Denatured, Of Any Strength Year To Date: January – December								
Partner Country	**Unit**	**Quantity**			**% Share**			**% Change**
		2003	**2004**	**2005**	**2003**	**2004**	**2005**	**2005/2004**
World	T	19	623	53	100.00	100.00	100.00	-91.55
Germany	T	6	37	38	33.58	5.87	71.40	2.76
United States	T	2	1	15	11.32	0.18	28.13	1241.30
New Zealand	T	0	576	0	0.01	92.51	0.00	-100.00
China	T	10	0	0	53.34	0.00	0.00	0.00

Fructose and fructose syrup for pharmaceutical and non-pharmaceutical:

Indonesia Import Statistics Commodity: 170260100, Other Fructose & Fructose Syrup For Pharmaceutical Industry Year To Date: January - December								
Partner Country	**Unit**	**Quantity**			**% Share**			**% Change**
		2003	**2004**	**2005**	**2003**	**2004**	**2005**	**2005/2004**
World	T	34	0	23	100.00	100.00	100.00	9281.85
United States	T	0	0	22	0.00	72.18	92.81	8
Japan	T	12	0	1	35.63	0.00	4.50	0.00
New Zealand	T	20	0	0	58.51	0.00	0.00	0.00
Austria	T	2	0	0	5.85	0.00	0.00	0.00

Indonesia Import Statistics Commodity: 170230910, Glucose Not Containing Fructose Year To Date: January - December								
Partner Country	**Unit**	**Quantity**			**% Share**			**% Change**
		2003	**2004**	**2005**	**2003**	**2004**	**2005**	**2005/2004**
World	T	7129	8740	8703	100.00	100.00	100.00	-0.42
France	T	2091	3449	3663	29.33	39.46	42.09	6.20
China	T	2963	1990	2250	41.56	22.77	25.85	13.03
Italy	T	292	811	1108	4.10	9.28	12.73	36.52
Korea South	T	1223	1385	855	17.15	15.85	9.83	-38.24
Germany	T	21	389	445	0.29	4.45	5.12	14.48
Belgium	T	40	20	140	0.56	0.23	1.61	600.00
South Africa	T	424	380	114	5.95	4.35	1.31	-70.00

Indonesia Import Statistics Commodity: 170230920, Glucose Syrup Not Cont. Fructose								
Year To Date: January - December								
Partner Country	**Unit**	**Quantity**			**% Share**			**% Change**
		2003	**2004**	**2005**	**2003**	**2004**	**2005**	**2005/2004**
World	T	1041	179	0	100.00	100.00	n/a	-100.00
China	T	21	0	0	2.02	0.00	n/a	0.00
Thailand	T	1016	173	0	97.61	96.71	n/a	-100.00

Source: Global Trade Statistics

Import duties of ethanol and sweeteners are 30% and 5% respectively.

Bio-Fuels Impact on Traditional Uses such as Feed, Food, Trade

Because no significant production yet exists, the biofuel sector is not having any impact on the traditional marketing and use of raw materials. However, as noted previously, should the sector develop, a significant impact on palm oil exports could follow.

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